

(12) UK Patent Application (19) GB (11) 2 348 996 (13) A

(43) Date of A Publication 18.10.2000

(21) Application No 9908434.5

(22) Date of Filing 13.04.1999

(71) Applicant(s)

Eric Rippingale
16 Oughton Head Way, HITCHIN, Hertfordshire,
SG5 2LA, United Kingdom

Mark Nigel Rippingale
71 Stapleton Road, ORPINGTON, Kent, BR6 9TO,
United Kingdom

Bruce Thomas Galliford
Hunters Gap, Ashlawn Road, RUGBY, CV22 5QE,
United Kingdom

(72) Inventor(s)

Eric Rippingale
Mark Nigel Rippingale
Bruce Thomas Galliford

(51) INT CL⁷

G06K 17/00, G06F 17/60 // G06F 153:00

(52) UK CL (Edition R)

G4H HJ HTG H1A H13D H14A H14B

(56) Documents Cited

WO 90/08440 A1 US 5324922 A US 5288976 A
US 5189287 A US 5003472 A US 4947028 A
US 4654482 A

(58) Field of Search

UK CL (Edition Q) G4H HJ HNP, H4K KF42
INT CL⁸ G06F, G06K

(74) Agent and/or Address for Service

Marks & Clerk
57-60 Lincoln's Inn Fields, LONDON, WC2A 3LS,
United Kingdom

(54) Abstract Title

Electronic ordering apparatus

(57) A device allows a user to enter order information which is then displayed on a display such as a television screen 3 and can be transmitted to a selected supplier in order to register the order. The user obtains a catalogue from a supplier which is provided with bar-codes corresponding to products provided by that supplier. The user can then swipe the bar-codes of desired products using a bar-code reader 2 to input the order information. The user's ID may be checked.

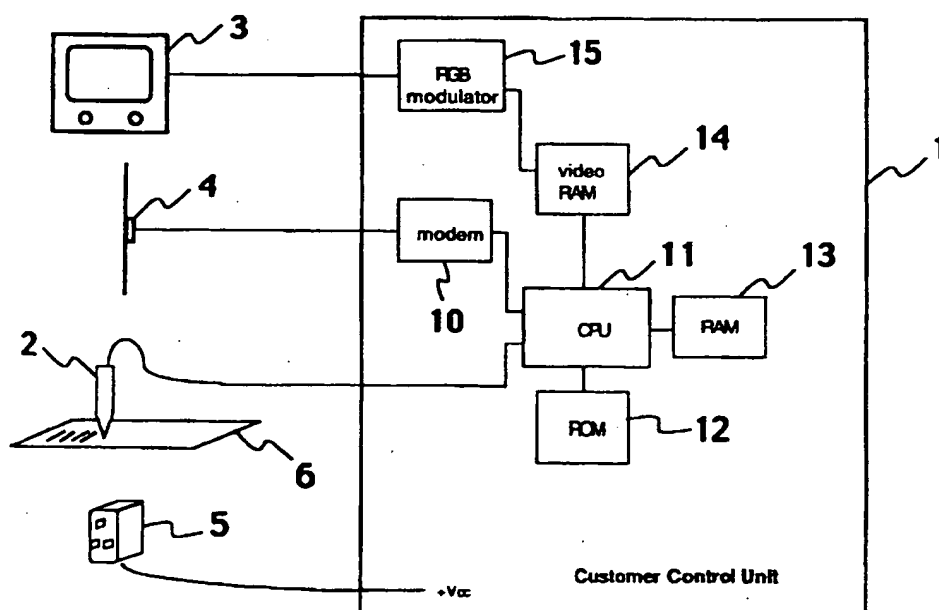


Figure. 1

GB 2 348 996 A

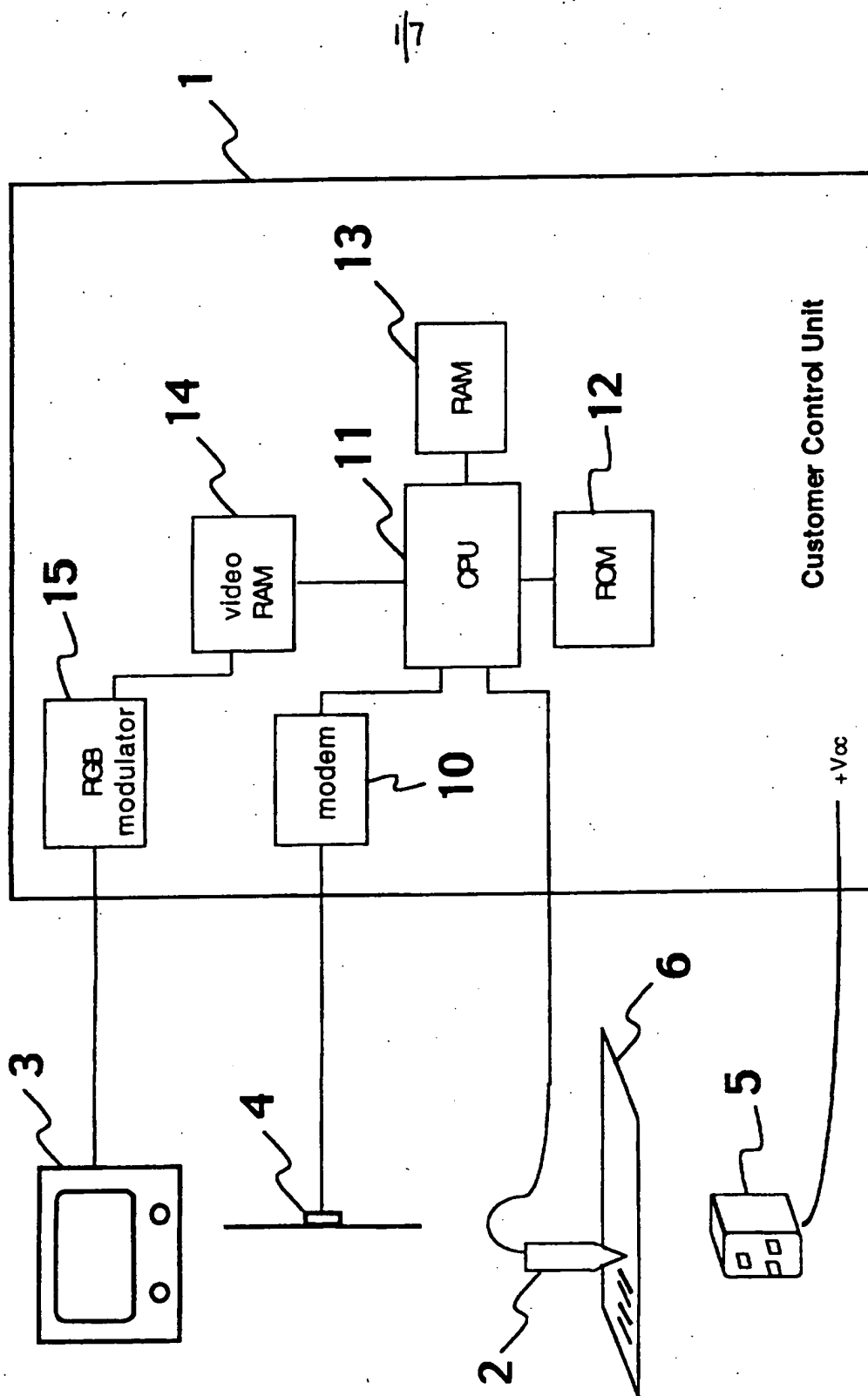


Figure. 1

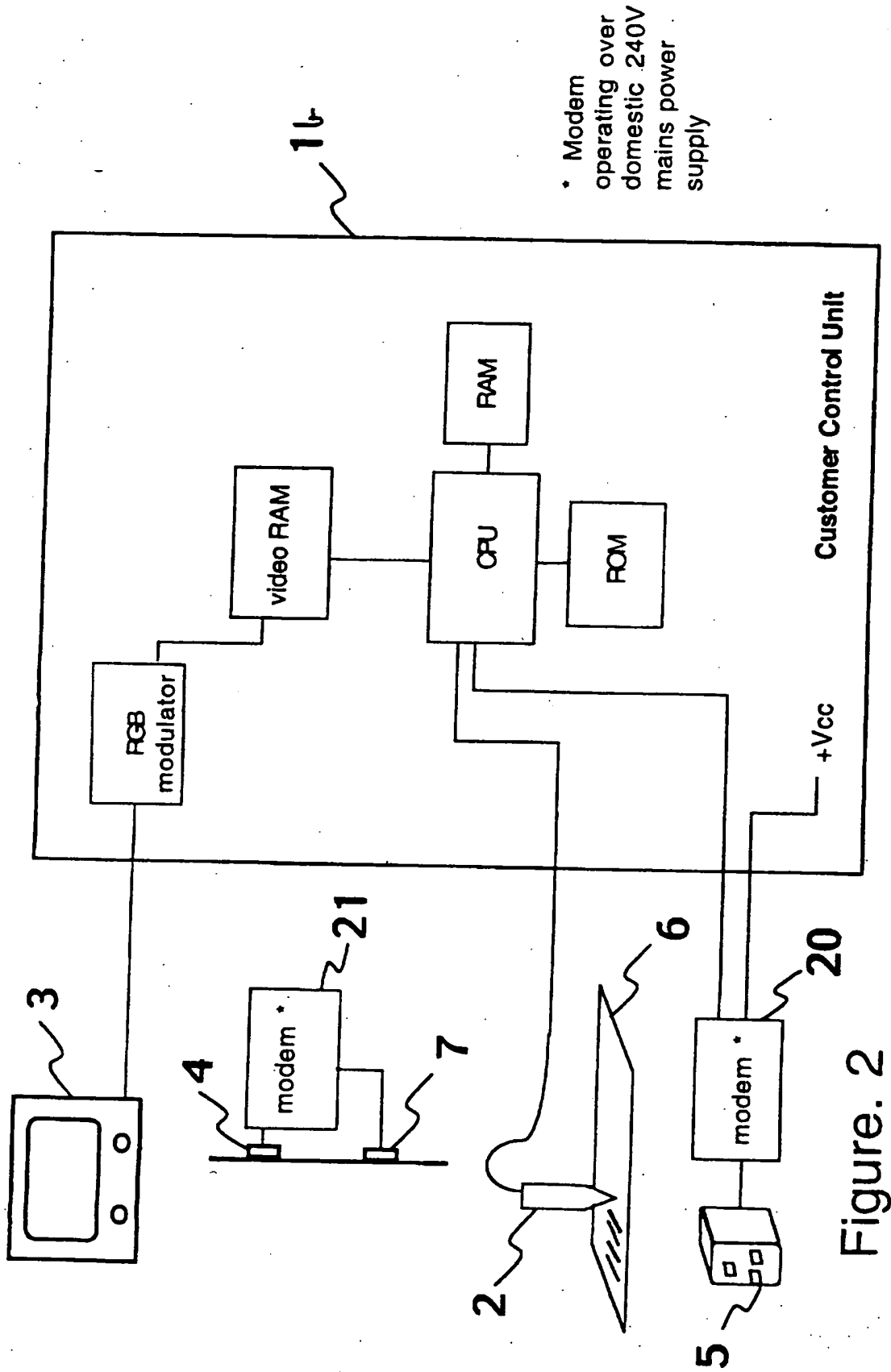


Figure. 2

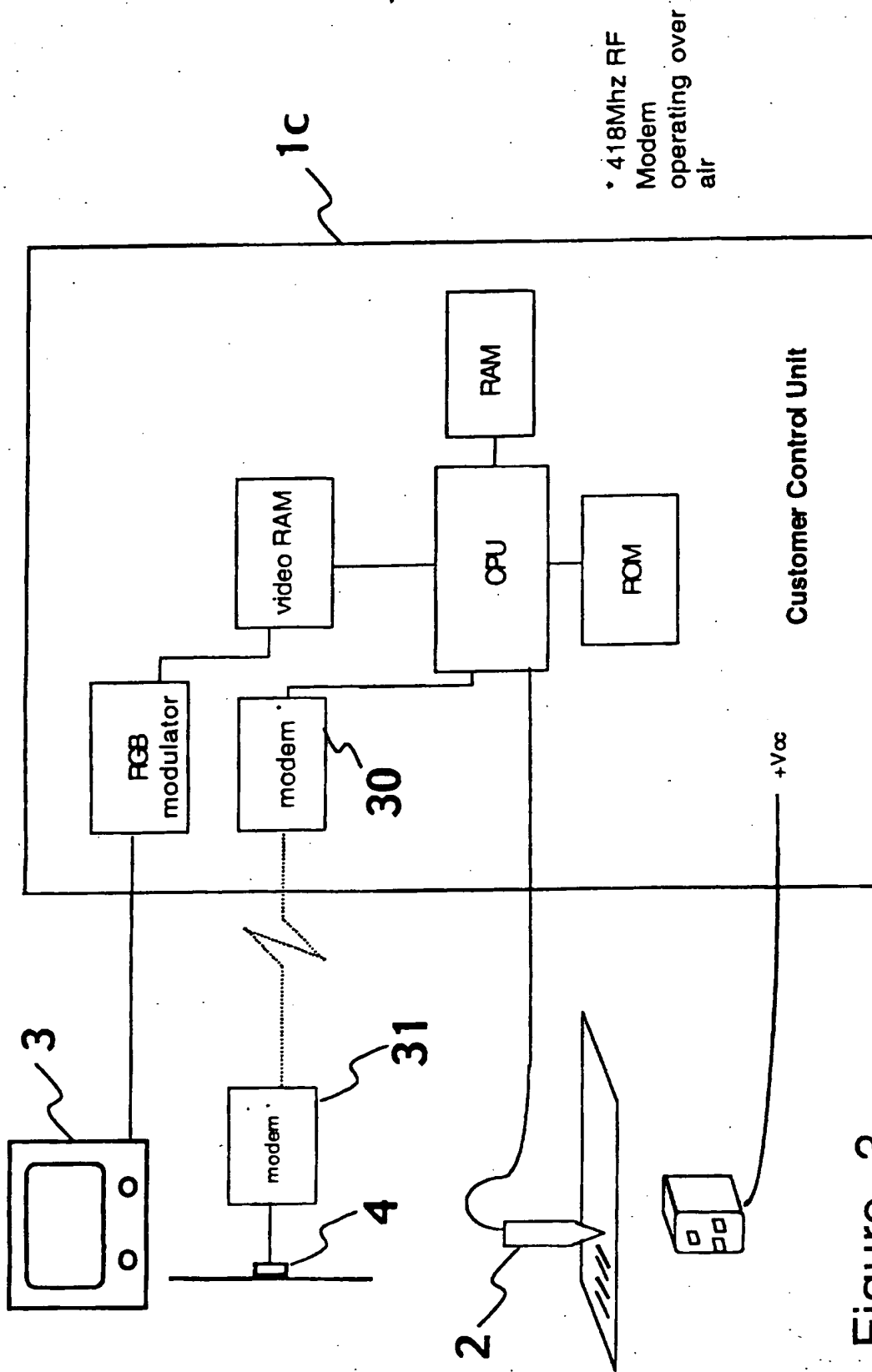


Figure. 3

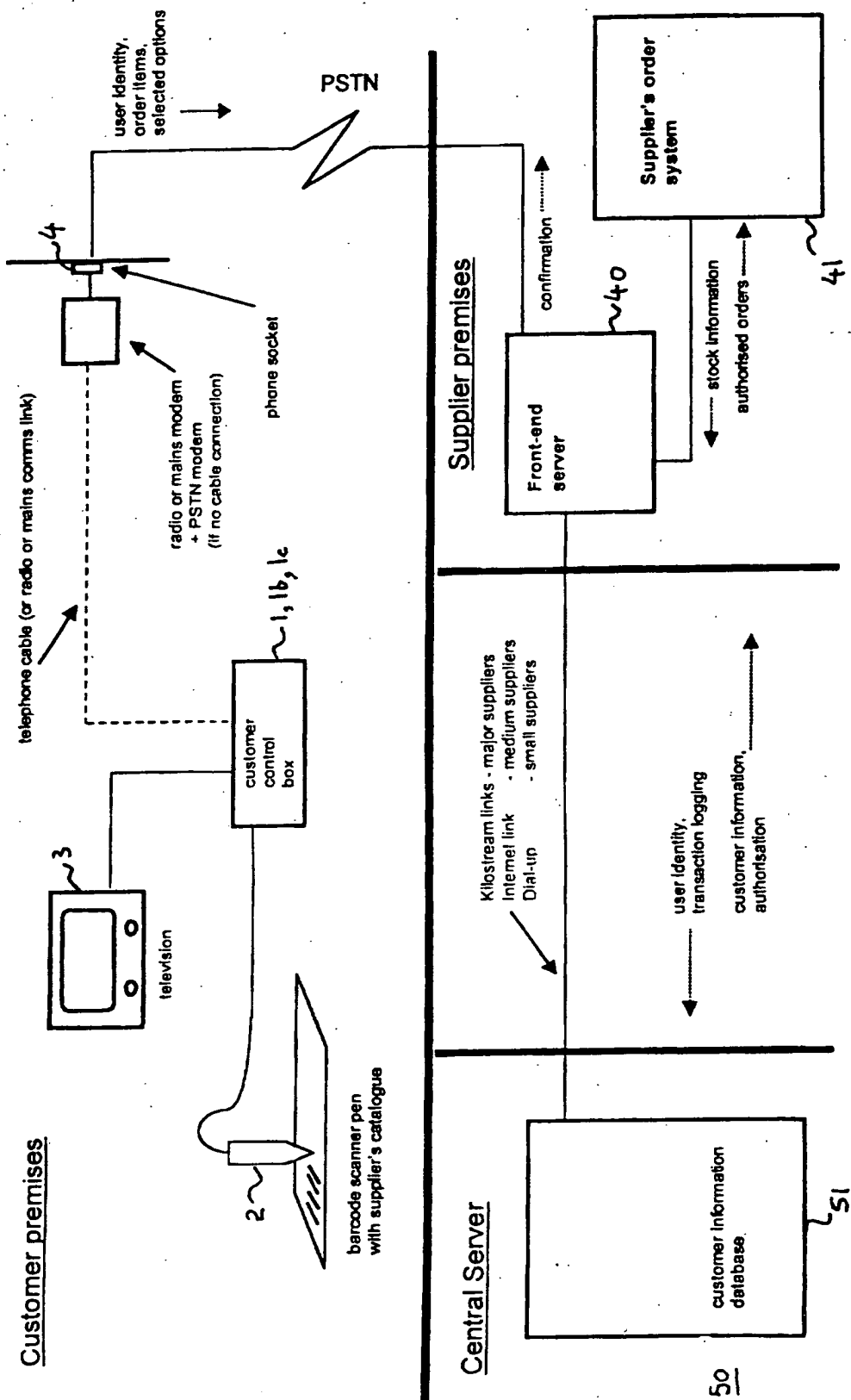


Figure. 4

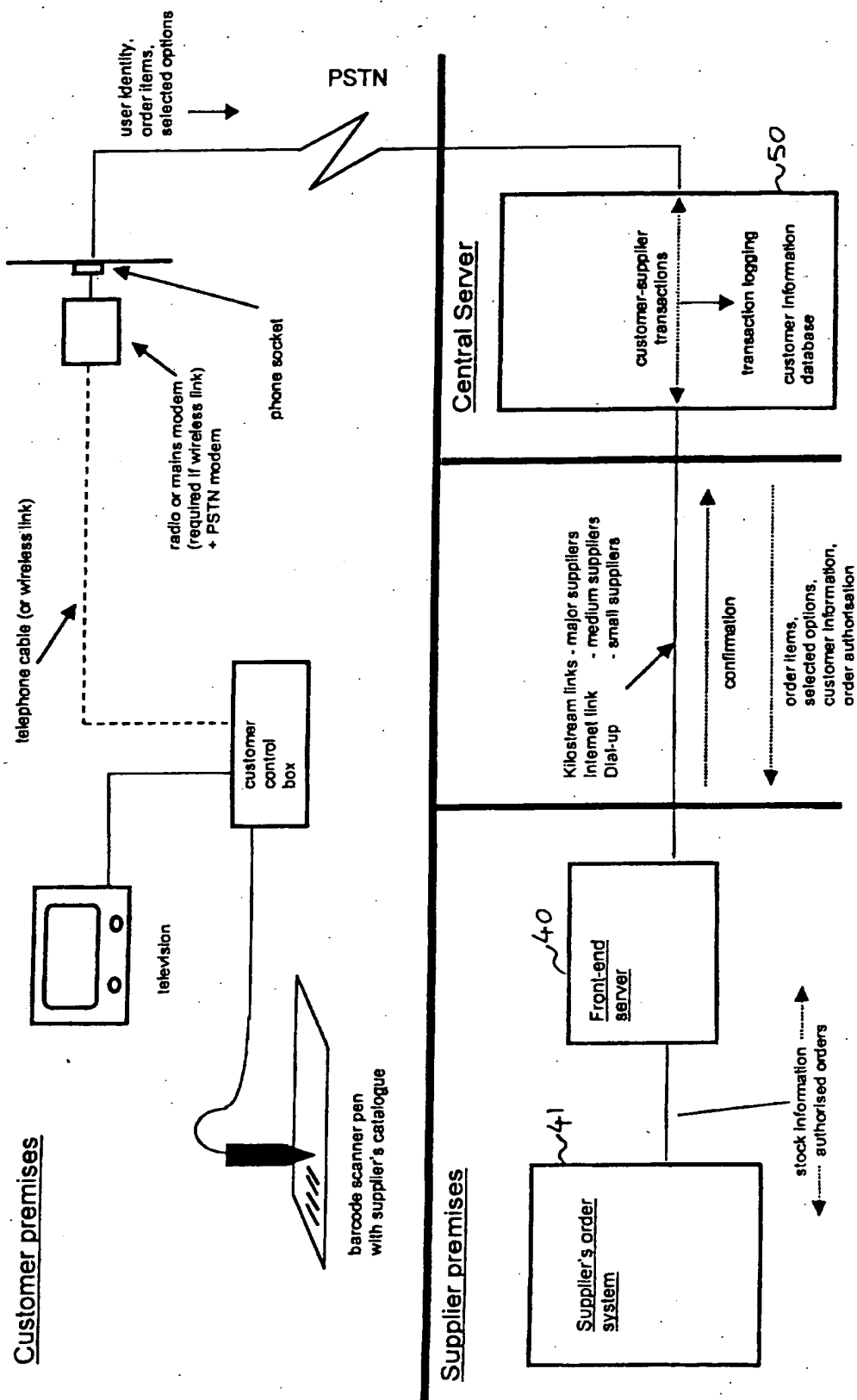


Figure. 5

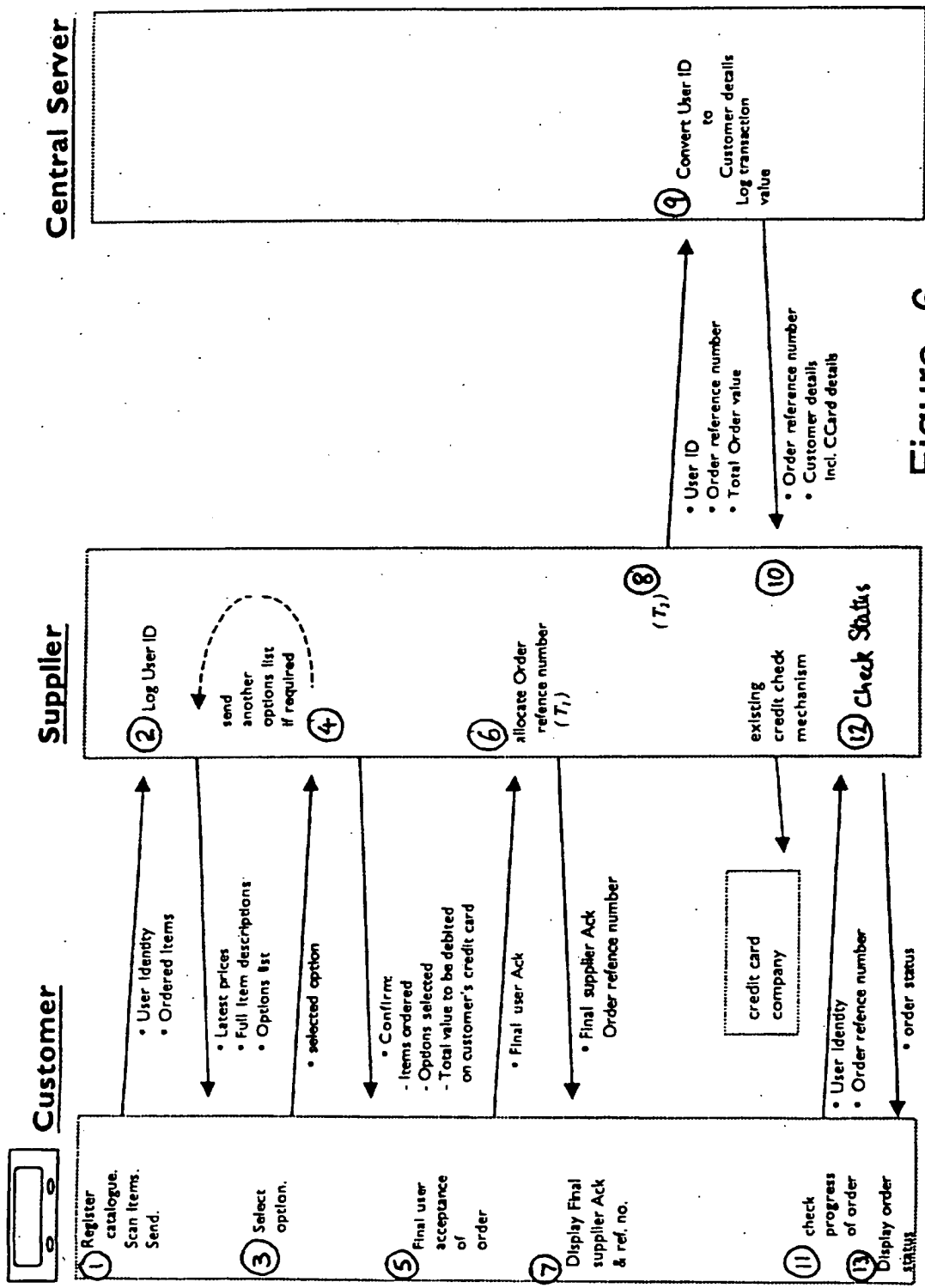


Figure. 6

ELECTRONIC ORDERING APPARATUS

The invention relates to an apparatus to allow a user to order goods or services electronically over a telephone line or other communications network.

The ordering of goods or services verbally over the telephone or through the internet is becoming increasingly popular. This usually involves telephoning the supplier of the goods or services directly, or contacting their world-wide web site, and identifying the various products or services which are required. Then, unless the supplier is prepared to provide the goods or services without pre-payment, the user must provide means for paying for the goods or services. This usually involves providing the supplier with the user's credit card details. In this specification references to products includes tangible goods as well as services.

This ordering process is somewhat laborious and where orders are placed using order codes, for example, there is a danger that mistakes may be made resulting in the wrong product being ordered unless the supplier is careful to confirm what has been ordered.

Furthermore, in order to order goods over the internet, the user must have access to a personal computer.

Therefore it is the intention of the present invention to overcome the problems associated with current systems for ordering products remotely and to provide a system which allows a user/customer to reliably select the products required and communicate their order to the supplier in a reliable and accurate manner.

Therefore in accordance with the present invention, there is provided an apparatus for placing orders electronically comprising:-

- a control unit;
- a bar-code reader connected, in use, to said control unit; and
- communication means for establishing a communications link to a supplier of products to be ordered.

The present invention also provides a system for processing order data comprising: a customer unit comprising an apparatus for placing orders electronically as described above; and a supplier unit, wherein the supplier unit includes further means for connecting to the communication means of the customer unit and for establishing said communication link therewith and for providing said supplier data in response to orders provided by the customer unit.

The present invention further provides a method for placing orders electronically comprising:

- identifying products to be ordered by scanning a bar-code reader over a bar-code corresponding to the desired product;
- compiling a list of products to be ordered to form a complete order;
- communicating said order to a supplier electronically; and
- displaying said products to be ordered on a display.

The data input means is preferably a bar-code reader. This allows the user to select products from a supplier's catalogue which provides a respective bar-code for each product which the user may require.

The communication means preferably communicates with the remote receiver over a telephone line although an alternative communication network may be used, for example cable, internet, etc. The communication means preferably includes a modem to convert the data signals from the control unit into a suitable form of transmission over

the communication network. The modem may connect directly to the communication network or may be connected indirectly via the mains power supply wiring or via a wireless link e.g. using radio frequency transmission or infra-red transmission.

The control unit may, upon receipt of user order data of the data input means, display information about the selected products on the display means based upon information stored in the memory provided in the control means or based on information obtained from the supplier in response to the entered order data. In addition, the control means may control the display means to display additional and ancillary information in response to the entered order data. This information may for example include information about related products or further information about the selected products such as the desired colour. In addition, the control unit may be arranged to receive additional data in reply to such ancillary information and to communicate that data to the remote receiver.

The display means may be a dedicated VDU unit or a standard television such that the control unit provides an appropriate signal to which the television can be tuned.

In order to provide additional security, the apparatus may be further provided with means for validating the identity of the user by requiring the user to input an identification code. This may be done by providing the user with a card having a unique bar code provided thereon which could be swiped by the user prior to entering user order data. The control unit could then validate the entered user's identity, for example from data previously stored in the control unit or by contacting a remote validation service provider. In addition, the control unit may be provided with its own unique identifying serial number so that when an order is placed, the supplier knows from which apparatus the order is originating from. This could be used as a further measure to prevent fraud. For example, if a user inadvertently lost their personal identification card, the system could be set up so that cards can only be used with predetermined or pre-arranged control units. Therefore if a bogus user attempted to use someone else's card and identity on an unauthorised unit, the order could be refused and appropriate

action could be taken, for example to trace the registered user of the control unit used, etc.

Although any suitable bar code system could be used, the standard retail bar code EIN 13+extension is preferably used. This would help to avoid confusion between two supplier's products since that system allocates a unique code to each supplier's product.

Whilst the present invention may be provided as a separate unit connected to a display unit, it may advantageously be included in a module for insertion into the conditional access socket of a set-top-box of a digital, cable or satellite TV receiver.

The present invention thus provides a unit which overcomes the problems of the prior art. There is no need for a user to spend time reading details eg. credit card details, address etc. over the phone to a supplier. Equally, the system avoids the expense and inconvenience of obtaining a personal computer and connecting to a suppliers internet site, again usually requiring the entry of details via a keyboard.

A specific embodiment of the present invention will now be described with reference to the accompanying drawings, in which:

Figure 1 shows an arrangement for a customer control unit;

Figure 2 shows an alternative arrangement for a customer control unit using a mains supply modem link;

Figure 3 shows a further alternative arrangement for the customer control unit using a radio frequency modem link;

Figure 4 shows an arrangement of the complete ordering system;

Figure 5 shows an alternative arrangement of the complete system;

Figure 6 shows the protocols used in the system shown in Figure 4; and

Figure 7 shows the protocols used in the alternative system shown in Figure 5.

Figure 1 shows an example of the equipment used by the customer. This includes a customer control unit 1 to which is connected a user input device in this case a bar code wand 2. The customer control unit (CCU) is also connected to a display means 3 such as a TV and to a telephone socket 4 via a modem 10, in order to provide access to a telephone network. Although the modem is shown as being part of the CCU, it may be provided externally with a connection to the CCU. In this way, if communication is to be provided via a means other than the public telephone network, eg. via cable, wireless telephone connection etc. The current modem can be easily replaced with one suitable for the new method of communication. Figure 1 also shows a power supply 5 connected to the CCU although the CCU may be provided with its own internal power source.

When the user wishes to place an order, they obtain a catalogue 6 from the supplier in which there are provided a selection of products each having an associated bar code to allow the user to select the desired product. Once the user has chosen a product, they use the bar code wand 2 to swipe the respective bar code in the catalogue 6 to register the selected item. The CCU then processes the received bar code information and displays the selected item on the display 3 to allow the user to confirm that the appropriate item has been selected. This process is repeated until the user has selected all the items which they wish to purchase and their order is complete. Once the order is completed, the customer control unit can then transmit the order information to the supplier via the modem 10. The bar code reader may be used to scan bar-codes in other places including on a product itself, for example to reorder that product or to order a related product.

In addition to the order information transmitted by the customer control unit, information regarding the user's identity and possibly also the identity or serial number of the CCU may also be transmitted. The user identity information means may be stored in the CCU permanently, or in order to provide extra security to the system, the user may be required to enter their identity prior to placing the order. This could be achieved by the user swiping a bar code provided on a card which they keep in their possession. Thus without the details on the user's personal card, the system cannot be used to place

an order on behalf of that user. The user identity can of course be entered into the CCU in some other way. For example the user may be required to insert a card eg. a smart card into the CCU or to enter their user identity in some other way such as by tapping their number into a key pad provided with their CCU. Security could be further enhanced by requiring the user to enter a password. This could again be achieved by using the bar code wand to scan a sheet provided with bar codes corresponding to individual letters and numbers or again by providing a key pad with the CCU. The identifying code or serial number of the CCU is preferably retained electronically in the CCU to prevent that information being tampered with. This information for example could be stored in the ROM 12 of the CCU.

Each bar code in the supplier's catalogue may include information identifying the supplier. Thus, once the CCU is provided with the identity of the supplier, then it can uniquely identify the supplier's details either from information stored in its own memory eg. ROM 12 or RAM 13 or it may obtain that information from a third party via the modem connection. Alternatively the supplier's information could be provided in the form of bar code information in the supplier's own catalogue. This information could be provided each time the user places an order from a given supplier or only when a supplier has not been ordered from before. In this way, when the customer subsequently orders from the same supplier, the information provided previously is stored in the RAM 13 of the CCU avoiding the need for the customer to scan all the supplier's details into the CCU every time.

The CCU can also store item information which has been previously scanned, e.g. to make up a "Favourites" list which could be used again at a later time to save rescanning, such as regular weekly-shop food items. The stored information could also include that which has been returned from the supplier such as personal discount prices and customer points accumulated (analogous to supermarket loyalty cards).

In addition to providing their own details and details of the products which they wish to order, as indicated above, the user may wish to provide additional information to the

supplier. This can be achieved by providing with each CCU, or in the supplier's catalogue, a page of bar codes for achieving specific functions. For example the user may wish to specify specific delivery dates or times, specify alternative means of payment, request information about products, request that the order be repeated at predetermined intervals and so.

When the supplier receives an order they may wish to respond to the user's order for a variety of reasons. For example if a product which has been ordered which is out of stock they may wish to offer the user a suitable alternative, provide an indication of when the item will be in stock, or offer the user the option of removing that item from their order. Furthermore, the supplier may wish to advise the user of special offers or information on related products. For example a user wishing to purchase one variety of apples may be offered the opportunity to buy an alternative variety of apple which is being sold at a reduced price. Thus, it will be appreciated that appropriate questions from the supplier could be used to prompt the user to supply responses which could be provided on a sheet of bar codes with a bar code corresponding to respective answers.

Alternatively or in combination, the bar-code reader or CCU could be provided with a number of buttons to allow selections to be made. For instance, they could be provided with coloured buttons, each button representing a response indicated on the screen by the respective colour (eg. red for select item, blue for cancel, green for select quantity etc.).

When a customer wishes to order multiples of an item or wishes to purchase for example by weight, the user may wish to identify the product and then identify the amount required. Alternatively, the user may simply re-swipe the bar code corresponding to an item to indicate the amount wanted. For example if the user wishes to purchase five items then they simply swipe the bar code corresponding to that item five times. For products sold by weight, volume, etc. then one swipe of the bar code could correspond to a single unit of quantity, eg. 100 grams, such that if the user requires 500 grams then they simply swipe the bar code five times.

As indicated in Figure 1, the CCU may be connected to the supplier via the public service telephone network (PSTN) via a standard modem 10. However, as shown in Figure 2, the CCU may be connected to the PSTN indirectly for example via the mains wiring within the user's house. In this case the CCU is connected to a mains supply modem 20 which modulates the signal from the CCU onto the mains supply wiring which is then received by a second modem unit 21 which is connected to the mains supply wiring, for example via a mains wall socket 7, at another location which then re-modulates the signal and outputs it onto the PSTN via a connection 4.

Figure 3 shows a further alternative in which the CCU is connected to a radio frequency modem 30 (although other wireless links could be used eg. infra-red, ultra-sonic) which transmits the data from the CCU to a receiving modem 31 which then re-modulates the signal and outputs it to the PSTN via the telephone socket connection 4.

In the above arrangements, the connection to the supplier is via the PSTN. However, it is envisaged that any suitable means of connection to the supplier is appropriate. This includes transmitting the information over the internet, via other wide area networks (WANs), local area networks (LANs), wireless (eg. mobile) communication etc. or a combination thereof.

When the order information is transmitted to the supplier this may be done in a number of ways. Figure 4 shows a first arrangement where the user connects directly to the supplier, who provides a front-end server 40 for receiving calls from one or more users. The server 40 can then authenticate the user's identity and other information provided by the user and then confirm whether the ordered items are in stock for example by reference to the supplier's main order system 41 or by information stored in the server 40 itself. The server 40 can then send information back to the user either confirming that the ordered items are in stock and that the order will be dispatched as well as additional information relating to the products ordered as discussed above or information in general eg. marketing information, special offers, promotions etc.

As shown in Figure 4, the supplier may additionally connect to a central server 50 incorporating a customer information data base 51. Again this connection could be provided in any manner of ways from high speed kilostream links for major suppliers right through to per-order dial-up connections for small suppliers who only have orders placed at infrequent intervals.

The supplier supplies the user identity information provided from the user whereupon the central customer information data base 51 provides appropriate customer information eg. full name, address, telephone number etc. as well as payment details. The central server 50 may also provide authorisation for the supplier depending upon whether the user in question is a valid authorised user and is credit worthy etc. The customer data base 51 may then log the order and retain a record of items purchased by that user, for example to ensure that a user does not exceed a predetermined credit limit etc.

Figure 5 shows an alternative arrangement in which when the user wishes to place an order they make a connection directly to the central server 50 which then directly utilises the information provided by the user to confirm whether the order is appropriate and should be authorised. The server which holds the central customer data base then contacts the relevant supplier via an appropriate connection (as discussed above).

When the connection to the supplier is established the central server sends the information about the order to the supplier. This information includes the information about the items ordered, any additional information (i.e. delivery date/time), customer information details and authorisation for the order. Then, as in the example of Figure 4, the front-end, server 40 at the supplier's premises receives the information and checks for stock availability and any other information from the supplier's main order system 41. This information is then sent back to the central server which then forwards the information back to the user. The user then receives information as to whether the order has been accepted, whether products are in stock, and any other optional information the

supplier may have sent. The user then may reply to the supplier's queries again via the central server.

The system shown in Figure 5 has the advantage that the user only has to call a single number regardless of the supplier of the goods to be ordered. Furthermore, he need only identify the supplier rather than needing to know addition details such as the supplier's telephone number for establishing a connection to them. The central server can establish whether the order which it receives is valid before forwarding the information to the supplier, thus avoiding the need for suppliers to process and seek authorisation for orders which will not be authorised for whatever reason.

In either of the systems of figures 4 and 5 the user or central server may send the order to the supplier by sending a facsimile including details of the order. Where the user sends the order to the supplier, the supplier can process the order using the information provided or additionally then contact the central server to exchange information with the server. Equally, with the system shown in Figure 5, the central server can fax the order information to the supplier. Using this system, the supplier needs nothing more than a fax machine to allow orders to be placed.

Figure 6 shows a detailed example of the information exchange protocol used in the system outlined in Figure 4. Referring to Figure 6, in step 1, the user registers the catalogue to identify the supplier and scans the appropriate item and then sends the order information to the supplier along with the user identity. In step 2, the supplier notes the user identity and replies to the user providing information about the order including latest prices, further information on or descriptions of the items chosen and a list of options for the user. In step 3, the user having noted the information provided by the supplier selects from the options provided by the supplier and re-transmits that information back to the supplier. In step 4, the supplier notes the options selected by the user and either returns to step 2 to provide further information or prices in response to the user's reply or on the understanding that the order is now complete sends a confirmation of the items ordered, what if any options have been selected and the total

that is to be debited to the customers credit card or account etc. At step 5, the user provides final acceptance of the order confirmed by the supplier in step 4 and transmits their acknowledgement to the user. At step 6, the supplier allocates an order reference number and re-transmits this to the user for future reference. At step 8, the supplier sends to the central server information about the user, the order reference details and the total value of the order. At step 9, the central server converts the user ID into appropriate customer details and notes the details of the transaction. The central server then transmits information about the customer's details including, for example, credit card details or other payment details and the corresponding reference number. Then, at step 10, the supplier may carry out a credit check on the basis of the supplied customer details, if this check has not already been carried out by the central server.

In addition steps 11 to 13 allow the user to check on the progress of an order which has been previously placed. At step 11, the user would identify the order placed usually by the order reference number previously identified by the supplier. At step 12, the supplier can then check on the progress of the order and then transmit information about the status of the order back to the user. At step 13, the order status information is received by the user's CCU and displayed on the display 3.

Steps 8, 9 and 10 above may be carried out after steps 1 to 7 or may be carried out simultaneously with steps 1 to 7.

Figure 7 shows a detailed example of the information transfer protocol for the system shown in Figure 5. Referring to Figure 7, in step 1, the user as usual identifies the supplier's catalogue scans in the items which are required and then sends the information to the central server along with their own identity. At step 2, the central server converts the identity information into the customers full details and transmits this information along with the order information to the relevant supplier. At step 3, the supplier analyses the order information and returns the information on the latest prices, full descriptions or information on the items selected and a list of user options back to the central server which forwards that information back to the user. At step 4, the user

selects appropriate options and communicates the selected options back to the central server which again re-transmits the selected option information back to the supplier. At step 5, the supplier reacts by either updating the order and returning to step 3 by providing price information and further options or determines that the order is complete and provides confirmation of the items ordered, options selected and the total value of the order. This information is sent again to the central server which forwards the information onto the user. At step 6, the user can choose whether to provide final acceptance of the order in which case this is communicated back to the supplier via the central server or to return to steps 3, 4 and 5 to amend the order further. At step 7, the supplier allocates an order reference number and then communicates this to the central server. At step 8, the central server logs the details and value of the transaction and then forwards the final acknowledgement and order reference number to the user. At step 9, the user receives and is provided with the order reference number. Again a credit check may be carried out with a credit card company or the credit information may be held by the central server. This may be carried out directly by the supplier for example at step 7 or by the central server on behalf of the supplier for example at step 8.

Again the user may wish to check the progress of any order and so at step 10 he provides his user identity and order reference number to the central server which forwards the customers details and order reference number to the supplier. The supplier then checks the status of the order and sends the order status information back to the central server which forwards information on to the user for display at step 12.

Although the above referenced examples refer to the use of a bar code scanner pen or wand for inputting user information it is envisaged that alternative means for inputting information into the CCU is possible. For example as mentioned above the CCU may be provided with a numeric or alpha-numeric keyboard to allow the input of order information. This may be in combination with the bar code reader to allow the input of for example passwords or to input information when the bar code is for some reason unreadable.

It is indicated above that the bar code references for providing order information are provided in a customer catalogue. This information may be provided in other ways for example printed on a letter, e.g. as part of a direct mailing, or information communicated over the radio or television. Additionally, it may be desirable to provide the possibility of scanning information provided in a visual form on a television or other display screen. For example a shopping channel may provide information in a coded form as part of the displayed image to allow the user to scan the screen directly to order a product.

In the above described examples, the user enters all the order information into the CCU prior to establishing a connection to the supplier either directly or indirectly through the central server. However, the system may be configured such that as soon as the user begins to use the system or for example when the supplier is first identified a connection is established to the supplier or central server (according to the arrangement of the system) so that as order information is entered the supplier can react virtually instantaneously to the entered orders to provide the user with option information immediately rather than once all the order items have been entered. The ordering process is thus more interactive in the sense that the supplier can send information on products selected immediately rather than for example a product selected ten items previously at the start of the order.

CLAIMS:

1. An apparatus for placing orders electronically comprising:-
a control unit;
a bar-code reader connected, in use, to said control unit; and
communication means for establishing a communications link to a supplier of products to be ordered.
2. An apparatus according to claim 1 wherein the control unit further includes video output means for outputting display information corresponding to said order data to a display.
3. An apparatus according to claim 1 or 2, wherein said communication means establishes a communication link to a supplier of products using a public service telephone network.
4. An apparatus according to claim 2 or 3 wherein said communication means is adapted to receive supplier information from a supplier and to provide said supplier information to a said control unit, and wherein said control unit outputs said supplier information to said video output means for display on a display.
5. An apparatus according to any one of the preceding claims wherein the communication means is a modem.
6. An apparatus according to claim 5 wherein the modem comprises a first part and a second part, wherein the first part of the modem is for establishing the communication link to a supplier and the second part of the modem is connected to the control unit and wherein the first and second parts of the modem communicate with each other.

7. An apparatus according to claim 6 wherein the first part of the modem communicates with the second part of the modem using one of: the mains electrical power supply, a wireless radio frequency link and a wireless infra-red link.
8. An apparatus according to any one of the preceding claims wherein the control unit includes identification means for outputting a serial number identifying the control unit.
9. An apparatus according to any one of the preceding claims wherein the control unit includes a validation means for validating the user, the validation means comprising input means for receiving identification information from the user, and comparison means for comparing said identification information with previously stored valid identification information.
10. An apparatus according to claim 9 wherein the user enters the user identification information using the bar-code reader.
11. A system for processing order data comprising:
 - a customer unit comprising an apparatus in accordance with any one of claims 1 to 10; and
 - a supply unit, wherein
 - the supply unit includes means for connecting to the communication means of the customer unit and for establishing said communication link therewith and for providing said supplier data in response to orders provided by the customer unit.
12. A method for placing orders electronically comprising:
 - identifying products to be ordered by scanning a bar-code reader over a bar-code corresponding to the desired product;
 - compiling a list of products to be ordered to form a complete order;
 - communicating said order to a supplier electronically; and
 - displaying said products to be ordered on a display.

13. A method according to claim 12 wherein said orders are communicated electronically using a modem.
14. An apparatus for placing orders electronically substantially as described herein and as shown in the attached figures.
15. A system substantially as described herein substantially as described herein and as shown in the attached figures.
16. A method for placing orders electronically substantially as described herein and as shown in the attached figures.



Application No: GB 9908434.5
Claims searched: 1-16

Examiner: Mike Davis
Date of search: 7 June 1999

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.Q): G4H (HJ, HNP), H4K (KF42)

Int Cl (Ed.6): G06F, G06K

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	WO 90/08440 A1 (BIANCO) whole document	1-16
X	US 5324922 (ROBERTS) whole document	1-16
X	US 5288976 (CITRON ET AL) whole document	1-16
X	US 5189287 (PARIENTI) whole document	1-16
X	US 5003472 (PERRILL ET AL) whole document	1-16
X	US 4947028 (GOROG) whole document	1-16
X	US 4654482 (DEANGELIS) whole document	1-16

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.